Growth Slowdowns, Inclusiveness, and Comparative Political Advantage

Richard L. Carson
Carleton University
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ABSTRACT

This paper develops a model linking political support to economic growth. Support-maximizing governments rely on wealth creation and wealth redistribution as sources of support, the latter giving rise to rent seeking. Efficiency requires most support to come from wealth creation, which in turn requires 'inclusiveness' to be high; institutional requirements for this are given. When inclusiveness is low, state policies to promote growth also promote rent seeking, and the rent-seeking effect eventually dominates, resulting in a high consumption cost of growth and potential stagnation. Comparative political advantage determines whether the quest for support leads to high or to low inclusiveness.

I. Introduction

In this paper, governments rely on wealth creation and wealth redistribution for political support. Since wealth redistribution leads to rent seeking, this is also reliance on wealth creation and rent seeking, the latter in the form of an exchange of political support for rent. Empirical studies strongly suggest that rent seeking lowers economic growth [Del Rosal 2011, pp. 316-17; Murphy, Shleifer, and Vishny 1991; Salinas-Jimenez and Salinas-Jimenez 2011; Gill and Kharas, 2007]. Here 'rent' means rent created by government interventions that restrict supply and protect against competition. We shall call this 'distributional rent.' Successful rent seekers are 'insiders' who represent special interests and supply political support to government—in the form of money, resources, information, repression of political rivals or opposition groups, etc.—in return for this rent, which is extracted from 'outsiders.' In a standard example, a government awards a monopoly to insiders in return for political support. Entry barriers raise its price, thereby transferring rent in the form of monopoly profit from its customers (outsiders) to its owners (insiders).

A government chooses a mix of wealth creation and rent seeking that maximizes its support, indexed by *U*. A system becomes 'inclusive' when the distinction between insiders and outsiders disappears, along with the means of exploiting outsiders. Let ψ be the share of outsiders in political support, which depends on the nature of the political system. When ψ rises toward one, the associated changes in this system cause the ability to gain support from rent seeking to fall and the ability to gain support from wealth creation to rise. Collectively, outsiders lose from rent-seeking redistribution and can only gain from wealth creation. This links inclusiveness to efficiency. As ψ increases, the support of insiders grows less important and that of outsiders more so until the distinction between the two vanishes, along with distributional rent.

Thus ψ indexes inclusiveness. Because a government adopts new policies only if they raise its support—no matter how desirable they may be on other grounds—the quest for support links the economic and political systems. As ψ rises, secrecy in government falls, along with rent seeking, the value of political power, redistribution from outsiders to insiders, and the vulnerability of political stability to competition for support. Market competition grows more intense. In *Why Nations Fail*, Acemoglu and Robinson [2012] also associate efficiency with inclusiveness, but without defining inclusiveness in a precise or quantifiable way.

This paper makes two contributions. First, it derives a political support function, *U*, with ψ as parameter and shows how changes in ψ affect rent seeking, efficiency, and growth. It also looks at institutional requirements for inclusiveness to be high—focusing on institutions of restraint and the conditions under which these institutions arise—and distinguishes equilibrium from disequilibrium growth. In disequilibrium, a fall of inclusiveness may raise efficiency temporarily, but the two correlate positively along an equilibrium growth path. Second, it shows how the quest for support causes ψ to change. Depending on comparative political advantage, as defined below, this quest can lead to either a highly inclusive or a highly non-inclusive outcome. A small change in underlying conditions can lead to big increases or big decreases in inclusiveness and efficiency, even though a government continues to pursue its self-interest.

On the supply side, the key element is an aggregate production function from which we derive a short-run production frontier, *TR*, in rent seeking, *R*, and useful output, *Y*. Here *R* also indexes the volume of political

support provided or financed by rent seekers in exchange for rent, and wealth creation means production of Y, which we take as numeraire. Only Y can yield utility from present or expected future consumption—this is the sense in which useful output is 'useful.' We break Y into two components, writing $Y = (Y - G) + G$, where G is rent-seeking profit and $(Y - G)$ is all other Y. A government's political support is then given by $U = U[(Y - G), G, R; \psi]$; a more specific form of U is derived below.

In this context, growth occurs when TR shifts outward owing to increases in inputs or technology. This is equilibrium growth when two conditions hold. First, production follows a path along which U remains tangent to short-run TR. Second, efficiency conditions (equations (4) and (5a) below) on the allocation of capital hold. Disequilibrium growth occurs when at least one of these conditions is violated. By contrast, an efficient outcome can occur only when distributional rent seeking (R) is zero.

Rent seeking in the context of growth recalls the work of Olson [1982], who argued that over time democracies accumulate large numbers of narrow special interests, or 'distributional coalitions.' These dominate 'encompassing coalitions' that are more inclined to represent the interests of society as a whole. Being larger and more diverse, encompassing coalitions find it harder to overcome the free rider barrier to organizing for effective political action. Rent seeking therefore leads to growing regulation, redistribution, and restrictions on competition plus declining innovation and growth. Precisely because of this, however, the institutions of inclusiveness can make it hard for governments to gain votes by acceding to the redistributive demands of special interests, even without encompassing coalitions. This forces reliance on wealth creation for support.

In what follows, we first set out the aggregate production function and use it to identify three types of economic growth. We then introduce a model of government support maximization and examine the role of inclusiveness. There are three types of growth in terms of the sources of growth. In two of these, government often plays a major role in promoting growth, which can give rise to distributional rents and rent seeking. Failure of government to regulate can also give rise to rent seeking, as in the Financial Crisis of 2008-9 and subsequent 'Great Recession.'

II. Types of Economic Growth

In Parente and Prescott [2004]—hereafter P & P—the aggregate production function takes the Cobb-Douglas form, with constant returns to scale and Hicks-neutral technology, which they claim provides a good empirical fit to the growth experiences of many nations. For any given economy, we write this as:

$$\text{GDP} = Y + \pi_R R = (Y - G) + V = E^* A K^{\theta} N^{1-\theta}. \quad (1).$$

Here GDP is gross domestic product or national income, Y indexes useful output valued in competitive prices, R is rent-seeking output or the output of political support provided in exchange for rent, π_R is the price of R in units of Y, and $V = G + \pi_R R$ is distributional rent that arises from supply restrictions and other government interventions. V can be broken down into rent-seeking cost, $\pi_R R$, and rent-seeking profit, G.

Since $(Y - G) = (\text{GDP} - V)$, or GDP net of distributional rent, $(\text{GDP} - V)$ is the income from producing Y, while V is the income from producing R. Also K is the economy's stock of physical and human capital used in production, N is labor, A is the world's stock of technological knowledge, E^* is the efficiency with which this economy uses A, K, and N to produce GDP, and θ is capital's share of value added. E^*A is total factor productivity (*TFP*) in producing GDP. Increases in E^*A magnify output without affecting the marginal rate of substitution of N for K at any given K/N. The elasticity of substitution, ε_S, between labor and capital is constant at one, and E^* varies between zero and one, whereas K and N are far larger than one.

We can re-write (1) as:

$$Y = E^* A K^{\theta} N^{1-\theta} - \pi_R R = EAK^{\theta} N^{1-\theta}, \quad (1a).$$

which is the equation for *TR* when resources and technology (A,K, and N) are fixed. With R plotted on the vertical axis as in Figures 1(a) and 1(b), the inverse of the slope of *TR* is $Y_R = E_R A K^{\theta} N^{1-\theta}$, where E_R is the change in E owing to a unit increase in R. Also $E = (1 - S_R)E^* = S_Y E^*$, where $S_R = \pi_R R/\text{GDP}$ is the share of R in GDP and $S_Y = Y/\text{GDP}$ is the share of Y. Like E^*, E varies between zero and one, with $E < E^*$ whenever $R > 0$. $TFP_Y = EA$ is total factor productivity in producing Y. If we divide both sides of (1a) by N, we have:

$$y = EAk^{\theta}, \quad (2).$$

where $y = Y/N$ is output per unit of labor and $k = K/N$ is capital per unit of labor.

In (1), (1a), and (2), the values of θ and A are common across economies. Empirically, θ is .55 to .57 [P & P, pp. 47, 47n], and P & P suggest (p. 38) that the annual trend growth of A is about .8%. By contrast, E is economy specific. For given A, K, and N, the maximum value of Y worldwide is $Y^F = W(A,K,N) = AK^{\theta}N^{1-\theta}$. This is the frontier value of Y where $E = 1 = S_Y = E^*$, which implies $R = 0$. For any given A, K, and N, Y^F is assumed to be independent of changes in any one nation. Over time, A is rising, and in any economy, E rises when TFP_Y grows faster than A and falls when TFP_Y grows more slowly. Thus Y moves closer to Y^F when E is rising and further from Y^F when E is falling. If E and E^* are positively correlated over time, moving away is not uncommon [eg., Salinas-Jimenez & Salinas-Jimenez 2011, p.115; van Ark, O'Mahoney, and Timmer 2008, p. 34; Young 1994, p. 970], keeping in mind that Y^F is itself increasing.

P & P argue that differences in GDP per capita, both over time and as of a point in time, result largely from differences in TFP. At any point in time, these differences reflect differences in E^*, and growth 'miracles' occur when E^* rises rapidly following a change in ψ and/or as a result of new opportunities for investment, production, or trade, which shift TR outward. The *levels* of E^* and E also affect growth since they affect the marginal product of capital and thus the return on investment. A unit increase of capital in Y, with capital in R held constant, gives a marginal product of $Y_K = (\theta Y)/K = (\theta E Y^F)/K$, which is increasing in E.

If we classify economic growth in terms of its sources, *extensive* growth is growth from increases in inputs, notably capital, with TFP_Y or EA held constant. *Intensive* growth is growth from increases in EA with inputs held constant. The three types of growth are: (a). *extensive*. (b). *intensive and based on technology catch-up—that is, on imported technology that is new to the importing country, but already in use elsewhere.* (c). *intensive and based on innovation—that is, on technology that is new worldwide.* Equation (2) gives:

$$y^g = E^g + A^g + \theta k^g, \qquad (3).$$

where the g superscript denotes rate of growth. Thus y^g is the sum of extensive and intensive growth rates of y, although the two types of growth are complementary in the sense that increases in TFP_Y raise the marginal product of capital in Y for any given capital-to-labor ratio, thereby offsetting diminishing returns to capital.

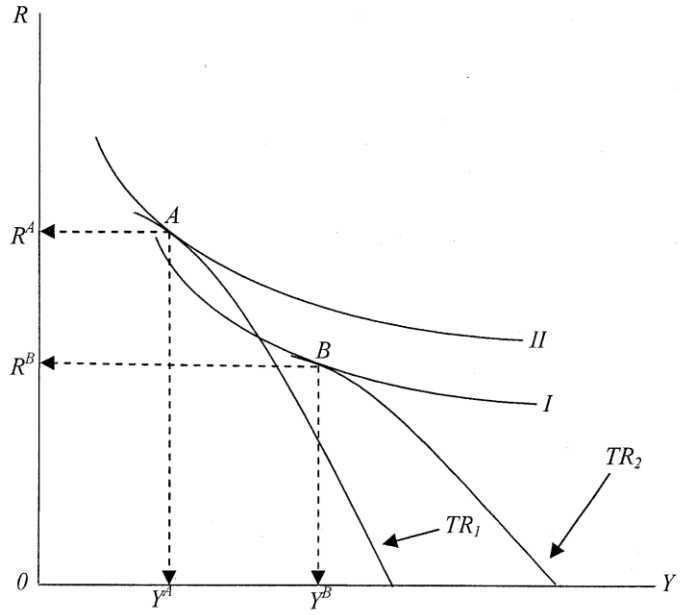

Figure 1(a)

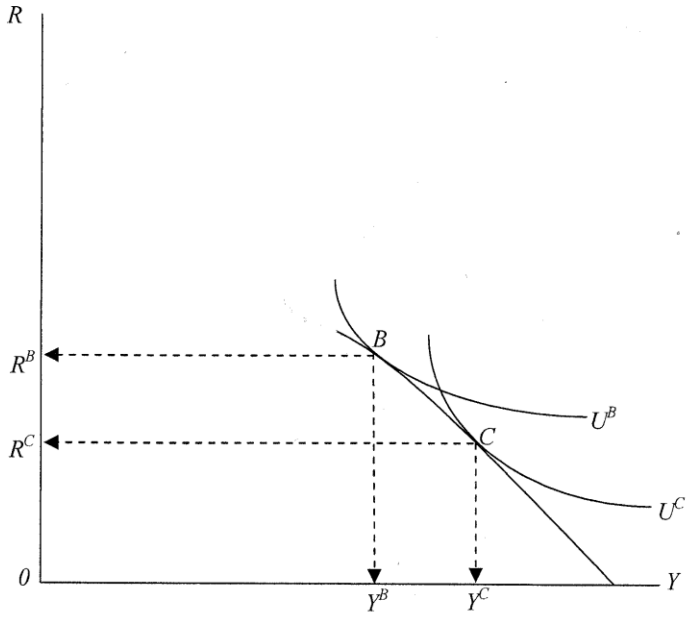

Figure 1(b)

However, investment in rent seeking has the opposite effect along an equilibrium growth path.

I. The Production Trade-Off between Useful Output and Rent Seeking

Let the *U*-subscript denote support-maximizing value. Then $E = Y_U/Y^F = (Y_U/Y^M)(Y^M/Y^F)$, where Y^M is the maximal value of Y (where $R = 0$) on the same TR as Y_U. Without rent seeking, $Y_U = Y^M$ would hold, and if the economy in question were on the worldwide technological frontier, $Y^M = Y^F$ would hold. Thus Y_U/Y^M is the rent-seeking ratio, while Y^M/Y^F is the technology ratio, although the two are not completely distinct. Rent seeking depresses Y_U in part by protecting the rents on obsolete technologies and on the associated jobs and skills. In an economy where rent seeking has been present for some time, $Y^M < Y^F$ will hold—an indirect cost of rent seeking—and current rent seeking depresses Y_U below Y^M because of both direct and indirect costs. Thus E is the product of two terms, each of which is less than one.

Along any given TR, E is decreasing in R because labor and capital used to seek rent could produce Y instead. Besides this direct loss of efficiency from rent seeking, there is an indirect loss in the form of allocative and X-inefficiency within the Y sector. This is the cost of protectionism and therefore of supply restrictions and other interventions used to generate the rent that insiders receive for R—see [Comanor and Leibenstein 1969]. The appearance of allocative or X-inefficiency is equivalent to a fall in Y if useful output is valued in the former competitive prices. E is also increasing in two types of capital. These are the capital, J, used to import technologies and implant them in the domestic economy, and the capital, H, used in new product research and development. These are distinguished from the capital, K, used in production, and $E = E(R, J, H)$. It is important to keep in mind that the link between E and R holds only along a given TR.

Let E_R, E_J, and E_H be the changes in E when, respectively, R, J, and H increase by one unit with other variables fixed and likewise for E^*_R, E^*_J, and E^*_H. E_R includes both the direct and the indirect costs of rent seeking. While capital accumulation may be subsidized in order to subsidize growth, capital is assumed to be allocated efficiently between the different types of capital, K, J, and H, along any equilibrium growth

path. Each will have the same marginal product in terms of GDP. This marginal product of J is $\text{GDP}_J = E^*_J AK^{\theta}N^{1-\theta} = E^*_J\text{GDP}/E^* = GDP_K = \theta\text{GDP}/K$ and likewise with H, giving:

$$E^*_J = E^*_H = \theta E^*/K < 1/K, \tag{4}$$

along an equilibrium path when J and H are positive. E^*_J and E^*_H are then nearly zero. Let e^*_{EJ} and e^*_{EH} be the partial elasticities of E^* with respect to J and H. Then the contribution of J to $(E^*)^g$, which is given by $e^*_{EM}J^g$, equals $(\theta/K)dJ$ where dJ is the annual change in J, and $e^*_{EH}H^g = (\theta/K)dH$ is the contribution of H.

After an equilibrium is disturbed by new opportunities, E^*_J, E_J, and therefore dJ may become large for a time as an economy copies a backlog of technology that is newly available. This is disequilibrium growth since (4) does not hold because E^*_J is too high. Once the copying is done, however, E^*_J, E_J, and dJ will become small again, and dJ/K will be tiny in numerical value. On an equilibrium growth path, the contribution of J to $(E^*)^g$ is largely to keep E^* from falling, except possibly because of rent seeking. The contribution of J to E^g is $e_{EJ}J^g = [(\theta/K) + (S_{YJ}/S_Y)]dJ$ where e_{EJ} is the partial elasticity of E with respect to J, and S_{YJ} is the change in S_Y caused by a unit increase in J. Thus θ/K, S_{YJ}/S_Y, and therefore $e_{EJ}J^g$ are all likely to be tiny. The contribution of H to $(E^*)^g$ and E^g may also be small, but type (c) growth is not limited by a backlog of technology to be copied as is growth of type (b). If an economy has enough type (c) growth, $(\theta/K)dH$ could be significantly positive on or off an equilibrium growth path.

Because TR is downward sloping and increases in R do not by themselves shift TR, $E_R < 0$ when an economy is on its production frontier. Then investment in rent seeking lowers the marginal product of capital, Y_K. Increases in R also lower E_H by leading to restrictions on competition from new products. As a result, increases in H lower E_R. In this sense, H and R are substitutes. The same may be true of J and R, but these can also be complements. Government interventions that create distributional rent—and therefore raise R—can both raise domestic saving and investment and channel savings into sectors prioritized for growth, as well as protect firms in these sectors. This approach has a potential for resource mobilization that creates rapid growth for a time, owing to increases in the technology ratio. Subsidies, restrictions, and controls can raise E at least temporarily by making it easier to target and import technologies in priority sectors, to

disseminate them rapidly and widely within the domestic economy, and to gain experience using them. Increases in R then raise E_J, implying that increases in J raise E_R, which could become positive during type (b) growth, a subject to which we shall return. When $E_R > 0$, the economy is inside TR, again implying disequilibrium growth.

Subject to TR and to $Y = G + (Y - G)$, a government maximizes U, assumed to be homothetic and strictly quasi-concave for any given ψ. If we first maximize U subject to $Y = G + (Y - G)$ for any given ψ, R, and Y, the support-maximizing division of Y into G and $(Y - G)$ occurs where $U_G = U_{(Y-G)}$ when $G > 0$. Here U_G and $U_{(Y-G)}$ are the changes in U when, respectively, G and $(Y - G)$ increase by one unit. For simplicity, we ignore the error that arises because a unit increase in G implies a unit increase in V, which has an indirect effect on Y. When $U_G = U_{(Y-G)}$ at each value of Y, U can be re-written as $U(Y,R;\psi)$, with $U_Y = U_G = U_{(Y-G)}$. A change in R along TR then entails a change in G in the same direction, as will be shown.

Let MC_R be the marginal cost of R, defined as the fall in Y along TR when R increases by one unit, including both direct and indirect losses. Then TR is strictly concave from below if MC_R is rising as R increases along TR, the rationale being that a government will try to minimize the loss of Y resulting from any given increase in R, but that these efforts are subject to diminishing returns as R/Y increases. If MRT and MRS are the marginal rates of transformation and substitution of Y for R, and R is plotted on the vertical axis, the first-order conditions for maximizing U are:

$$MRT = (MC_R)^{-1} = MRS = U_Y/U_R = U_G/U_R = U_{(Y-G)}/U_R = (\pi_R)^{-1} = -(Y_R)^{-1} \quad (5).$$

In Figures 1(a) and 1(b), four maxima are shown, at A and B in Figure 1(a) and at B and C in Figure 1(b). In addition, when capital, K, is efficiently divided between Y and R, the value of marginal product of K will be the same in each and likewise with labor, giving:

$$\pi_R = (MRT)^{-1} = Y_K/R_K = Y_N/R_N, \quad (5a).$$

or $\pi_R R_K = Y_K$, $\pi_R R_N = Y_N$.

Let P^M be the point on TR where $R = G = 0$ and $Y = Y^M$. Then P^M is the most efficient point on TR, as well as the point at which GDP net of distributional rent, or $(\text{GDP} - V) = (Y - G)$, is maximized. Let Y^m be

the output at which V reaches its maximum feasible value of V^m. Let R^m and G^m be the corresponding values of R and G. As shown below, R_U, G_U, and V_U all change in the same direction along any TR in response to a shift in the isoquants of U. This makes R^m and G^m the maximum values of R_U and G_U and Y^m the minimum value of Y_U on TR. Let P^m be the point (Y^m, R^m). At any point (Y,R) where $Y < Y^m$, $R \leq R^m$ must hold as well, and U is lower than at P^m. Thus all possible support maxima lie between P^m and P^M.

The flatter are the isoquants of U for any given TR—and thus the higher is $(MRS)^{-1}$, the demand price of R, at each (Y,R)—the higher R_U and the lower Y_U will be. This is shown in Figure 1(b), where U^B leads to higher R_U and lower Y_U than U^C. Likewise, for any given support function, U, let TR become steeper, in the sense that MRT rises and MR, the supply price of R, falls at each given Y. Then R_U/Y_U will again rise. In Figure 1(a), TR_1 shows a comparative economic advantage in rent seeking, whereas TR_2 shows a comparative economic advantage in useful output. A comparative advantage in rent seeking results from a high past demand for R—which has led to a build-up of capital specialized to rent seeking—whereas a comparative advantage in useful output results from a high past demand for Y.

Suppose a political change lowers MRS at each (Y,R), causing the isoquants of U to become flatter, as in the shift from U^C to U^B in Figure 1(b). The short-run result is a move from C to B, which raises R_U and lowers Y_U. The higher demand for R also stimulates the demand for rent-seeking specialized capital, thereby causing MRT to rise over the long run. TR shifts from TR_2 to TR_1 in Figure 1(a)—which is flatter at any given R/Y—and R_U/Y_U again rises, as in the move from B to A. Over time, the demand (or short run) and supply (or long-run) effects of the political change are reinforcing.

II. The Effect of Inclusiveness on Political Support.

Whether a political system is inclusive or non-inclusive depends on the shares of insiders and outsiders in political support. Moreover, when ψ is low, V_U will be high, as we shall see, implying relatively strong restrictions on supply and a relatively high level of protectionism that produces relatively high rent. When ψ is high, V_U will be low, and markets will be more competitive.

Government's support, U, is assumed to depend on ψ and to be a non-decreasing function of insider support, U^I, and of outsider support, U^O. Given this, assumptions (i) and (ii) determine U: (i). U^I is increasing in sR, where $s = s(G,R)$ indexes government's success in gaining support from R. Here $0 \leq s \leq 1$, $s_G \geq 0$, and $s_R \leq 0$, since an increase in G gives a stronger incentive to support the government, while an increase in R weakens this incentive by spreading a given G over more R. U^I is also increasing in R and G with marginal products, $U^I_R = s + s_R R$ and $U^I_G = s_G R$. U^O is an increasing function of (GDP – V) = ($Y - G$), the income from producing Y, with marginal support value $U^O_{(Y-G)}$. A government is assumed to be able to compare the sizes of U^I and U^O, implying that U^O can be measured in units of R. (ii). Let ψ index a government's ability to rely on U^O for support, interpreted as the share of U^O in U. Let $(1 - \psi)$ index its ability to rely on U^I. Then ψ depends only on the political system, and not on R, G, or $(Y - G)$.

For any given political system and ψ, (i) and (ii) imply that U is Cobb-Douglas in U^I and U^O. Thus:

$$U = [U^O(Y - G)]^{\psi}[U^I(R,G)]^{(1-\psi)}, \qquad (6).$$

where U, U^O, and U^I are all measured in units of R. When $\psi = 1$, $U = U^O$ and $R_U = G_U = V_U = 0$. The support maximum on any TR is then at P^M where $(Y_U - G_U) = Y_U = Y^M$. If $\psi = 0$, $U = U^I$ and $\text{GDP}_U = V_U$ would hold. In practice, V_U cannot rise above V_m, and the minimum value of ψ is the one, say $\psi = \psi_m$, that gives a support maximum at P^m, the point of maximum rent extraction; ψ varies between ψ_m and one. The ability to extract rent is limited, and outsiders must receive some income, implying $\text{GDP}_U > V_U$. Thus U always depends on over-all economic performance, and never on rent alone, although the weight of $Y - G$ = GDP – V is increasing in ψ.

A final assumption is: (iii). There are non-increasing returns to $(Y - G)$ in U^O in the sense that the second partial derivative, $U^O_{(Y-G)(Y-G)}$, is non-positive. Also G and R show diminishing returns and complementarity in U^I in the sense that the second partials, U^I_{GG} and U^I_{RR}, are negative and the mixed partial, $U^I_{GR} = U^I_{RG}$, is positive. A government uses increases in G to give rent seekers stronger incentives to support it, thereby raising U^I and U^I_R at each R. Assumption (iii) implies that U^I is strictly quasi-concave.

When $\psi < 1$, (6) implies that the ratio of $U_{(Y-G)}$ to U_G is:

$$U_{(Y-G)}/U_G = [\psi/(1-\psi)](U^I/U^O)(U^O{}_{(Y-G)}/U^I{}_G). \quad (7).$$

Since $U_G = U_{(Y-G)}$ is necessary for dividing Y into $(Y-G)$ and G in a support-maximizing way, suppose that $U_G = U_{(Y-G)}$ holds initially at each (Y,R). Thus $MRS = U^I{}_G/U^I{}_R$. If ψ then increases, $U_{(Y-G)}/U_G$ must rise at each point $((Y-G), G, R)$. By assumption (c) this requires G to fall and $(Y-G)$ to rise at each (Y,R) in order to restore $U_G = U_{(Y-G)}$. The fall in G raises $U^I{}_G/U^I{}_R$ at each given R, while the increase in $(Y-G)$ does not affect $U^I{}_G/U^I{}_R$. Thus an increase in ψ raises MRS at each (Y,R).

Greater inclusiveness therefore implies steeper isoquants of U and a lower demand price, $(MRS)^{-1}$, of R at each (Y,R). The shift from U^B to U^C in Figure 1(b) results from an increase in ψ. The most basic effect of such an increase is to raise Y_U and lower R_U in both the short and long runs, as we saw at the end of the previous section. In the short run, G_U must fall when R_U falls—despite the increase in Y_U—for otherwise the support-maximizing value of $U^I{}_G/U^I{}_R = U_G/U_R$ would fall, by assumption (iii). It follows that G_U is positive when R_U is positive in both the long and short runs, which is when $\psi < 1$, the reason for positive G_U being that increases in G have political support value. Viewed as the supply price of R, π_R correlates positively with R along any given TR. Thus V_U is also decreasing in ψ in the short run. Less inclusive governments rely more on insiders for support and therefore need to extract more distributional rent to pay for this support, which requires them to be more protectionist.

Since utility comes only from consuming Y, a government will be secretive when ψ is low in order to hide the loss of Y from rent seeking and extraction of rent. Secrecy also provides a favorable environment for corruption, defined as the use of political office for personal gain. A polity with low inclusiveness will have a relatively high level of corruption, and governments will award positions with opportunities for corruption in return for political support. The support of a corrupt official, who is also an insider, is more valuable to a government when ψ is low than when ψ is high, while the support of outsiders who bear the cost of corruption is less valuable.

The backbone of an inclusive polity is a set of effective institutions of restraint—such as an independent and impartial police and judiciary and a free press—that uphold basic rights and freedoms and limit corruption and government abuse of its power [Rodrik 2014]. By upholding impartiality and raising the cost of maintaining secrecy, such institutions make it harder for rent seeking to raise political support and for secrecy and deception to cloud the link between government policy and economic performance. By requiring secret ballots, they also raise the cost of buying support in the form of votes, since they prevent buyers from verifying receipt of purchase.

In an environment with universal suffrage, free and fair voting, secret ballots, and political support measured in votes, a low cost of evaluating voting alternatives is a key to limiting the ability of politicians to extract rent [Chang, Golden, and Hill, 2010]. This forces them to rely more heavily on increasing GDP net of distributional rent for support—and more generally to gain support by performing well rather than by buying it. However, inclusiveness does not necessarily imply democracy. If failure to maintain economic efficiency would threaten a government with overthrow, even an autocratic ruler has an incentive to maintain effective institutions of restraint. By the same token, democracy does not necessarily imply inclusiveness. Suppose that the benefits of economic growth go entirely to insiders and that this is consistent with support maximization. Then U^O is constant over time, and sooner or later, $U^I > U^O$ will hold. The maximum of U over all values of ψ will occur where $\psi = \psi_m$, the minimum value of ψ. This could happen in an 'illiberal' democracy, which is a democracy lacking effective institutions of restraint.

A ruler of an autocratic polity relies on an elite base of supporters [Wintrobe 2004] to sustain him in power. These are the insiders, and effective rent seeking imposes a loyalty requirement on them. This is $U^I_R \geq 0$, which implies $\varepsilon_{sR} = -(s_R R/s) \leq 1$ at the support maximum. In turn, this implies $-(s_R/s) < 1/R$ and $(s_G/s) < MRT/R$, in the latter case because $MRS = U^I_G/U^I_R = s_G R/(s_R R + s) = MRT$ at the support maximum when $\psi < 1$. If R increases by x percent with G fixed—which dilutes the incentive to support the government—s must fall by no more than x percent. If R is then high, U^I_G/U^I_R must be low because MRT is low.

Thus for an autocratic government to be strong—more generally, for a non-inclusive government to be strong and stable—s must be high and insensitive to changes in R and G, in the sense that s_R/s and s_G/s are small in numerical value. When this requirement is met, U^I is sensitive to changes in R. Likewise, for an inclusive government to be strong and stable, U^O must be sensitive to changes in $(Y - G)$, and it helps for s to be sensitive to changes in R and G. This implies competition for political support, although not necessarily democracy. As noted above, an autocracy can be inclusive if economic efficiency is essential to a government's survival—eg., owing to external pressures or opportunities or to a low level of extractible rent. Autocrats not facing such constraints will try to repress competition for support in order to make s insensitive to changes in R and G. Thus they will select and promote insiders whose inherent loyalty to the ruler is high, where 'inherent' loyalty is loyalty that stems from shared attributes, values, goals, and experiences—or from the presence of a charismatic leader—more generally, from factors other than G.

Inherent loyalty, indexed by λ, is a substitute for G and is complementary with R in the sense that an increase in inherent loyalty raises s at any given G and R and lowers s_G and $-s_R$, thereby lowering *MRS*. However, use of loyalty as a success criterion also implies a possible substitution of inherent loyalty for competence. In this context, the protections and restrictions that often accompany type (a) or type (b) growth and lower ψ also lower the demands on managerial and administrative ability.

An actual or prospective government has a comparative political advantage in U^I at any point on *TR* if $U^I > U^O$ there and a comparative advantage in U^O if $U^O > U^I$. Comparative political advantage depends on the initial value of ψ—whether ψ is high or low—and, for any given ψ, on comparative economic advantage and on the specific skills that a government brings to producing political support. Comparative economic advantage reflects past investments and thus past values of ψ. Suppose that the support maximum for a government is where $\psi = \psi_m$, and that this maximum is not expected to change. This creates an incentive to accumulate capital specialized to rent seeking. An initial support maximum at $\psi = 1$ that is expected to last will create an incentive to accumulate capital specialized to useful output.

Suppose that $\psi_m < \psi < 1$. Then a comparative political advantage in U^I implies that a decrease in ψ will raise U, while a comparative political advantage in U^O signals that an increase in ψ will raise U. Thus the only possible support maxima over all ψ are at the endpoints of the political spectrum where $\psi = \psi_m$ or $\psi = 1$. If successful, the quest for support becomes the road to either low or to high inclusiveness—to serfdom or to a relatively egalitarian and prosperous society. In the latter case, a government following its own self-interest may increase efficiency and welfare by more than if it was really trying to do this out of benevolence alone (to paraphrase Adam Smith). Efforts of governments to raise their support move ψ away from mid-range, and political and economic systems that are initially similar can become quite different in time—although a more general discussion would not rule out intermediate outcomes completely. It helps a government with a comparative advantage in U^O to emerge if competition for insider loyalties prevents λ from becoming high for any competitor, thereby ruling out a strong and stable autocracy.

Fragmentation of political support caused by competition for power is an Achilles heel of a non-inclusive polity since it causes s to be sensitive to changes in R and G. Fragmentation can also undermine an inclusive political system, but such a polity thrives on competition for support—as long as there are not too many competitors—whereas a non-inclusive polity needs strong restraints on this competition. Since efforts to restrict competition often wind up displacing it instead, however, it is more accurate to say that competition for power under autocracy is more like competition to become a monopolist than competition for votes based on tax cost and quality of government services and policy-making. Under autocracy, two-thirds of all leadership changes result from non-co-operation—coup, regime change, assassination, popular uprising, or foreign intervention [Svolik 2012, p. 5]. This suggests periods of stability interspersed with periods of conflict and instability.

How Types (a) and (b) Growth Affect Efficiency

Economies with low initial capital-to-labor and/or technology levels can often use government intervention to speed up growth of type (a) or type (b) for a time, both by accumulating capital rapidly and by

rapidly raising the technology ratio, Y^M/Y^F. In type (b) growth, the technologies to be imported are understood and have known requirements for effective utilization. Such growth can be implemented via forced saving and by channeling resources into priority sectors. The same is true of growth of type (a).

In promoting type (a) or type (b) growth, governments with a comparative advantage in U^I also promote rent seeking by raising V via the interventions used to promote growth and lowering the return on investment in Y (lowering Y_K) by lowering E. One consequence is a higher consumption cost of growth, in the form of a greater sacrifice of consumption required for any given increase in Y when ψ is low than when ψ is high. Because of this growth promotion, the economy is left with subsidies, restrictions, and controls that lower innovation, competition, and efficiency, but which are politically hard to remove, since political support depends on the rents they generate. Another possible result is a middle income trap, in which types (a) and (b) growth lead to middle-income status, but no higher because investments that could break the economy out of this trap are blocked by protection of rents, which such investments would compete away. In this case, the indirect cost of rent seeking is high. It puts a ceiling below one on E by creating an upper bound below one on the rent-seeking ratio and possibly on the technology ratio as well.

The lower the political support value of special interests and rent seeking, the more leeway a support-maximizing government has to implement efficient outcomes that meet its distributional support needs—in particular, to allow sectors or occupations to decline or to adopt new technologies that destroy existing rents. A special interest will be reluctant to allow the sector it represents to decline because this would lower its political influence [Acemoglu and Robinson 2001]. Instead, it will lobby for supply restrictions and subsidies that raise the demand for the capital, labor, and natural resources of its constituents.

Despite this, conventional analyses of types (a) and (b) growth assume that rent seeking is absent. Suppose that this is initially true. Since $Y_K = y_k = \theta Y/K = \theta y/k$ then holds we have:

$$k^g = y^g - (y_k)^g, \qquad (8).$$

where $(y_k)^g$ is the rate of change of y_k over time. Substituting (8) into (3) gives:

$$y^g = [(E^g + A^g) - \theta(y_k)^g]/(1 - \theta) \text{ or } (y_k)^g = ((1-\theta)/\theta)[E^g + A^g - y^g] \qquad (9).$$

Growth of TFP_Y increases Y_K at each capital-to-labor ratio, thereby raising the value of k that goes with any given Y_K. In this way, increases in EA create new opportunities for extensive growth, the complementarity between extensive and intensive growth referred to earlier. With $\theta = .57$, a .8% increase in A, with E constant, raises the value of k corresponding to any given y_k by 1.86%.

Equation (9) becomes $y^g = k^g = A^g/(1-\theta)$ when E and y_k remain constant. If $A^g = .8\%$, both k and y will then grow by 1.86% per year when $\theta = .57$. Over half of this growth is from capital deepening rather than from increases in TFP_Y, which is why all nations that have achieved modern economic growth have dramatically raised their capital-to-labor ratios. Even though most of the growth of y is extensive, the intensive part is crucial in limiting the fall in $y_k = Y_K$. From (9), if y grows at a constant rate in an economy unable to generate intensive growth, y_k will be falling at $(1-\theta)/\theta$ or about .79 times that rate. This makes rent seeking an increasingly attractive investment option and strains the assumption of zero rent seeking. Instead (5a) will govern the way that capital and labor are divided between useful output and rent seeking. Moreover, investment in rent seeking will lower Y_K at any given K/N along an equilibrium growth path.

Let σ_S be the share of saving in GDP, and let σ_I and σ_{CAP} be the shares of gross investment and the current account surplus. Then $\sigma_S = \sigma_I + \sigma_{CAP}$. For any given GDP, σ_S constrains the expansion of investment and net exports and therefore of growth, especially export-led growth. A government with a comparative political advantage in U^I might choose export-led growth in order to combine entrepreneurship on export markets with protectionism at home. Instead of allowing interest rates to rise when investment demand increases, such a government would choose credit rationing, which keeps rates lower on official credit markets, but also allows differential access to credit based on priority. Low-priority borrowers then have to build up their savings in advance of large purchases or retirement or in order to be ready for a rainy day, etc., while high-priority borrowers benefit from low rates and good access. This scheme can both raise σ_S and prioritize investments, but leaves behind the earlier-noted system of privileges.

Mainly extensive growth outside the space and defense sectors was a feature of the state-managed Soviet-type economy (STE), a planned and controlled system with many quotas, restrictions, and subsidies.

These interventions may have increased growth for a time by creating forced savings, rapid capital accumulation starting from a low base, and strong incentives for labor to migrate from agriculture to industry. In the Soviet Union, GDP per capita grew over 1928-1990 by an annual average of 2.6% to 5 times its original level [Ofer 2008], although nearly all the sustainable growth had occurred by 1970.

A falling marginal product of capital was documented by Weitzman [1970] as early as the 1960s, and relative to the U.S., Soviet GDP/capita peaked at 37.5 % in 1970 [Ofer 2008]. After 1970, the Soviet capital-to-labor ratio soared, while the marginal product of capital fell rapidly [Easterly and Fischer 1995, p. 358]. By the Gorbachev years, the economy was stagnating, with GNP/capita rising by just .4% per year over 1986-1990 and then falling in 1991[Ofer 2004]. Using a Cobb-Douglas production function, the growth of *TFP* averaged a half percent per year over 1950-87. TFP growth was slowing and became negative during the 1970s until the end of Soviet Union [Ofer 2004, Table 1].

If the elasticity of substitution (ε_S) is less than one, as Weitzman and Easterly/Fischer [1995] believed to be true of the Soviet economy, growth will slow more sharply as k rises, since the greater difficulty of substituting capital for labor causes the marginal product of capital to fall faster. Under constant returns to scale, $(-y_{kk}/y_k) = (1 - \theta)/\varepsilon_S k$. The lower is ε_S the faster y_k will fall. The argument for low ε_s is that the high rate of Soviet investment made it hard for planners to substitute capital for labor in old production facilities at the same time that they were building new ones. As a result, much capacity lay idle for want of labor [Ofer 2008]. This co-existed with widespread overstaffing of firms, which is to say that resource allocation was poor.

Easterly/Fischer originally estimated ε_S to be .37 for the Soviet economy (pp. 355-357), later corrected to .49 [Easterly and Fisher 2008], following criticism by Beare [2008]. Using $\varepsilon_S = .49$, they estimate *TFP* growth to have been falling over 1950-1987, reaching near zero in 1987, by which time E^*—and E if the two were positively correlated—was also falling since A was rising. Thus regardless of whether ε_S was below or equal to one, E^* and E were falling well before the end of the Soviet Union. Falling profitability of state firms at official prices plus their financial indiscipline (the soft budget constraint [Kornai

1980]) caused growing budget deficits, since tax revenues depended on profitability. These deficits were mostly monetized, causing repressed inflation in the form of rising differences between official prices, which generated increased rent seeking in the form of efforts to take advantage of the difference between actual prices and what borrowers were willing to pay. In Russia, the freeing of consumer prices in January 1992 caused them to more than double from official levels at the end of 1991.

The STEs also left a legacy of resistance to market-oriented reforms in successor transition economies by those whose rents were threatened [Aslund 2002, ch. 9]. Rent seeking weakened the impact of economic reform except where new elites with both a comparative political advantage in U^O and decisive political support could emerge. Because the skills/institutions of a Soviet-type economy and those of an efficient market economy are quite different, the costs of switching were high, and this helped the STE to survive for many years despite poor performance. Over 1970-91, there was hardly any net growth of GDP per capita in the Soviet Union, and in Russia, GDP plunged by nearly 40% in 1992, the first year of transition; growth did not resume until 1999 [Ofer 2008].

Intensive growth of type (b) must die out as E approaches one. Because of rent seeking induced by efforts to promote and direct growth, however, E may stall short of one. To track the effect on E of type (b) growth, let $e_{EJ} = E_J(J/E)$ and $e_{ER} = E_R(R/E)$ again be the partial elasticities of E with respect to J and R. In absence of type (c) growth, the role of H will be small, and if we ignore this, the growth rate of E is:

$$E^g = e_{EJ}J^g + e_{ER}R^g. \qquad (11).$$

From what was said earlier, E_R and e_{ER} will be negative along an equilibrium growth path, and $e_{EJ}J^g = [(\theta/K) + (S_{YJ}/S_Y)]dJ$ will be tiny in numerical value. However, $e_{EJ}J^g$ could be large in disequilibrium if E_J is high and J is rising rapidly. On an equilibrium path, the economy is always on some TR, and E varies inversely with R for any given A, K, and N. An increase in ψ lowers R, thereby raising E. For any given support functions U^I and U^O, therefore, E will vary directly with ψ along an equilibrium growth path.

There is empirical support for such a result. Suppose that a higher level of corruption implies a climate conducive to a higher level of R and that E and E^* move in the same direction. Then efficiency will

vary inversely across nations with the level of corruption, a finding of Salinas-Jimenez and Salinas-Jimenez [2011], see also Keita [2017]. The effects that Salinas-Jimenez and Salinas-Jimenez assign to corruption could easily result from rent seeking more generally. The factors that favor corruption—secrecy and lack of openness or transparency in government—also favor other forms of rent seeking, including protection of rents on existing technologies and skills. While corruption may seem less benign than, say, lobbying, each involves a transfer of wealth from those who are victims of rent seeking to those who seek rent successfully, and each is likely to increase political support by a larger amount when the victims are unaware of the transfer. Each also involves competition for rent—eg., competition between lobbyists for favors and competition for political offices with opportunities for corrupt gains.

When increases in R raise E_J, increases in J will raise E_R, keeping in mind that R indexes not only rent seeking, but also the strength and scope of the protections that generate rents. As a result, E_R could become positive and E_J could become large for a time following the appearance of new opportunities to shift TR outward that enable an economy to break away from its old equilibrium path and raise both efficiency and growth by raising the technology ratio, Y^M/Y^F. For example, some developed nations might raise the access of developing nations to their technology and domestic markets without requiring reciprocity, thereby offering new opportunities for poorer nations to import technology, to learn to use it in production, and to expand exports of products based on it. If this causes E_J to be high, an increase in the technology ratio can be achieved by growing J rapidly and by rapidly accumulating capital that embodies the imported technology, taking advantage of the complementarity between intensive and extensive growth.

If the government of the importing nation has a comparative political advantage in U^O following the appearance of the new opportunities, it will rely more on market competition and less on interventions to alter market outcomes. If ψ is not already close to one, it will rise toward one—provided support-increasing reforms are carried out—and the same is true of E. If the advantage is in U^I, however, there will be more interventions designed to raise domestic investment and savings (by raising σ_S), and to channel savings into

sectors prioritized for growth. In particular, there will be more protection and subsidies, and interest rate ceilings and credit rationing will play a larger role.

Subsidies, restrictions, and controls can raise E temporarily by making it easier to target and import technologies in priority sectors, to disseminate them rapidly and widely within the domestic economy, and to gain experience using them. For this reason, the new opportunities for growth may create a comparative political advantage in U^I, especially if short political time horizons assign a high support value to near-term growth. The technology-importing country may also promote information and technology sharing between firms, thereby subsidizing the process of learning to make products based on the new technologies.

The interventions that generate rent represent an effort to "govern" the market [Wade 2004]. If successful, they will change comparative economic advantage within Y toward higher value-added products whose exports are promoted. Potentially this is both a strategy of import substitution and one of export promotion, as well as a policy of *dirigisme* in the sense of promoting growth in specific sectors. However, this is also inter-equilibrium growth that is unsustainable. It begins when the economy leaves the initial equilibrium growth path and ends on a new path after the new opportunities have been exploited and the contribution of J to further growth has again become small. By then, E_R will again be negative, and E will be low or falling, although since Y^F is rising over time, this does not necessarily imply that Y_U is falling. As E varies directly with ψ along an equilibrium growth path, however, a comparative political advantage in U^I implies that E is either falling or else stationary and low and thus that growth of Y_U along such a path comes entirely from increases in A, K, and N.

Sooner or later, E will be lower and the consumption cost of growth will be higher with a comparative political advantage in U^I than with a comparative advantage in U^O since the former lowers E until it is quite low, while the latter raises E until it is quite high. This cost is likely to be paid mainly by outsiders, while the benefits of growth go mainly to insiders. It is made higher by the share of total investment that goes to rent seeking, which increases as ψ falls. If Y_K and R_K are the marginal products of capital in Y and R, an efficient division of investment between the two sectors occurs where $\pi_R R_K = Y_K$—that

is, where the marginal value product of capital is the same in each and more generally where (5a) hold. The support-maximizing value of π_R is decreasing in ψ—a low value of ψ implies a relatively high price of *R*.

Once potential gains from type (b) growth have been realized, it is time to switch to type (c) growth, the only kind that can be sustained permanently. For a government with a comparative advantage in U^O, this is a natural next step. For a government with a comparative advantage in U^I, however, this conflicts with the support need to keep *V* high, which requires protections that crowd out innovation and new product R&D. Moreover, in generating type (c) growth *dirigiste* policies are of doubtful value. Successful *dirigisme* requires a government to know which industries, technologies, and production methods to promote and in which specific types of human and physical capital to invest. Without observable past experience as guide, this knowledge either does not yet exist or else is scattered among various economic agents—producers, consumers, researchers, etc.—and much of it remains tacit. An advantage of markets originally noted by Hayek [1945] is that they can work well without having to centralize this information.

Type (c) growth requires competition, well-developed financial markets, and freedom from market and trade distortions. Supply restrictions such as those associated with credit rationing, which are endemic to type (b) growth, are a major barrier to the entry and expansion of small firms and thus to innovation and the development of technically sophisticated products [Aghion, Harmgart, and Weisshaar 2008, esp. pp. 50-54].

III. Type (b) Growth in East Asia

Several nations in East Asia are examples of type (b) growth with government playing a leading role—in facilitating technology imports, in disseminating technologies to domestic producers, in assisting their learning to use these technologies, and in channeling resources into targeted growth sectors. These nations promoted export-led growth, building efficient export industries in the process. For three decades and more, they achieved an economic ‘miracle’, using a model that included large public investments in infrastructure and technical education, as well as targeting of growth sectors. Targeted industries were subsidized and protected, and large investments were made in them. This required controls on financial

markets that channeled loans to favored borrowers—who were initially not competitive on world markets—as well as barriers to imports, which were often tightly controlled, thereby protecting the domestic market.

The East Asian economies also built up their human capital and shifted comparative economic advantage within *Y* toward higher value-added products. However, Young [1994], Krugman [1994], and others argue that East Asian growth came mainly from capital deepening and increased labor force participation rather than from *TFP* increases, which were lower than in many slower-growing nations. Average capital productivity fell in most Asian economies, and capital deepening was the main source of labor productivity growth [APO 2015, pp. 85-90]. Yet there is evidence that official statistics understate the growth of *TFP* in Singapore and Taiwan and overstate the growth of capital in Singapore [Hsieh 2002].

For many years, Japan provided the growth model for much of East Asia. Japanese experience appeared to prove that government intervention in the form of industrial policy could raise growth. More recently, Japan has been viewed as a stagnant economy with too many resources tied up in 'zombie' firms that are bankrupt, but continue to operate because of generous credit subsidies in the form of loans that are constantly renewed even when borrowers do not service them and have no ability to pay them back. As a result, there is less credit available for innovation or founding of new firms, which are effectively 'crowded out' by credit rationing and other forms of protectionism.

Annual growth of real GDP per capita in Japan, measured in purchasing power parities of 2005, averaged 8.2% over 1960-73 during the economic miracle, but then fell to just 1.2% over 1990-2007 [U.S. Department of Labor 2008]. Relative to the U.S., Japanese per capita GDP peaked in 1991 and is now below Taiwan [APO 2015, p. 37]. In Taiwan, the fastest growth of GDP/capita (in 2001 prices) occurred over 1975-1990, at 7.4%, falling to 3.4% over 2000-2007. Growth of GDP per capita also slowed in Singapore and South Korea.

To examine the evolution of *E*, we assume that *E* and *TFP* change in the same direction over 20 years or more. According to the APO Productivity Databook for 2015, the contribution of *TFP* growth to the growth of GDP was lower over 1990-2010 than over 1970-1990 in Hong Kong, Malaysia, Thailand, Taiwan,

and Japan, although it was higher in South Korea. Over the entire period, 1970-2013, it averaged about a half percent in Japan vs. just under 2% in Taiwan, 1.7% in South Korea, and .4% in Singapore [APO 2015, pp. 77-78].[1] This suggests that *E* fell in Japan and Singapore, but rose in Taiwan and South Korea, both of which became democracies during this period. However, these results must be qualified by the observation that APO overestimates *TFP* growth by failing to net out growth due to improvements in the quality of labor. Moreover, [Hsieh 2002] argues that *TFP* growth should be adjusted upward by about 2% per year for Singapore and one percent per year for Taiwan, although his reference period is shorter than the periods used here. Thus *E* may well have risen in Singapore, which faces strong external pressures to be efficient.

VII. Conclusion: Rent Seeking and the Role of Government

Along an equilibrium growth path, *E* and ψ move in the same direction, which is determined by comparative political advantage. Thus government efforts to grow the economy more rapidly by replacing or "governing" the market often worked for a time, when initial conditions were right, but subsequently gave way to stagnation in Soviet-type economies and Japan and to growth slowdowns in other East Asian economies. The culprit was rent seeking. It maintained the system of privileges that depressed *E* and prevented reforms that could have sustained or revived growth. The antidote was a government with a comparative political advantage in U^O and thus an incentive to raise *E* by expanding the role of institutions of restraint and otherwise reducing protectionism and rent seeking.

However, supporters of a minimal economic role for government drew a quite different lesson from the Soviet and East Asian experiences, which reinforced their belief in the efficiency of self-regulating markets—the 'magic' of the market. The idea of efficient, self-regulating financial markets replaced older views, including that of Adam Smith, who had argued in favor of government regulation to avoid 'endanger[ing] the security of the whole society [Smith, p. 324].'[1]

In the United States, lax financial regulation helped lead to the financial crisis and "Great Recession" of 2008-9, although government policies also played a role. Opportunities for rent seeking arose from a

rapid increase of property values caused by easy money and deregulation in combination with government promotion of home ownership. Together with regulatory gaps, this promotion allowed lenders to issue and then to sell low-quality mortgages at little risk to themselves. A ready market for these "sub-prime" mortgages relieved lenders of the cost of borrower default, which they passed on to buyers of mortgages and mortgage-backed securities. As a result, low-quality mortgage lending grew rapidly, and low-quality (sub-prime and non-prime) mortgages came to comprise over half of all mortgages. After issuing these mortgages, the issuing bank or shadow bank would either sell them outright or cut them into pieces that were pooled with pieces of other mortgages to produce securities that were sold.

The ready market for these mortgages arose because the quasi-public mortgage giants, Fannie Mae and Freddie Mac, stood ready to buy mortgages at high prices, which they then securitized and sold. Ultimately, the lending frenzy depended on the generosity of Fannie and Freddie and on buyer over-valuation of mortgage-backed securities. Their quality was not transparent, and bond rating agencies were captured by securities issuers, resulting in ratings that were too high. The bull market spawned by easy money and home ownership promotion also contributed to the over-valuation. Rising property values led to rising prices of mortgage-backed securities, which provided good returns to securities buyers as long as real-estate prices kept rising.

At first, monetary policy accommodated this process, but in 2004 the Federal Reserve changed course abruptly and began tightening money and credit. It raised interest rates 17 times over 2004-2006—the discount rate rose from 1% to 5.25%—and then began lowering rates again, to near zero in December 2008. House prices peaked in mid-2006 after rising for 15 years and then began to fall. When this fall speeded up over 2007-2008, borrowers often found that they owed more on their mortgages than their properties were worth, in addition to which sub-prime borrowers faced low initial payments, which then escalated. These factors caused many mortgage holders to default, which revealed the riskiness of securities based on these mortgages. As a result, the demand for them imploded, causing the sub-prime mortgage

market itself to collapse in 2007. The home ownership rate went up and then back down; by 2014 it was below the 1995 level [Callis and Kresin 2014, 2015].

Initially, rising property values boosted demand via the wealth effect, and household debt rose. Easy money and credit intensified this boost and made inevitable the Great Recession that followed. Prices of real estate and securities soared, but these prices were on a bubble, which burst when mortgage borrowers began to default in numbers. The subsequent fall in values of real estate and mortgage-backed securities, aided by the Fed's temporary tightening of money and credit, put the wealth effect into reverse. For lenders, the riskiness of lending rose, especially to small borrowers, whose net worth had declined and many of whom were by now carrying large amounts of debt. These borrowers lacked access to government bailout funds. The fall in demand for durable goods by households and small firms—which was intensified by higher borrowing costs and tighter credit—became the main cause of general economic decline and subsequent slow recovery.[2] In particular, the crisis lowered employment in financial services, where rent seeking had been intense, and in sectors, especially construction, whose demand had been buoyed by rent seeking.

The shadow banking system—consisting of financial intermediaries that provide credit and liquidity, but avoid regulation by selling securities to access savings instead of accepting deposits and do not benefit from the insurance systems that support banks—grew during the housing bubble to become larger than the banking system. When the bubble burst, the shadow banks suffered the equivalent of bank runs and became the part of the financial system that shrank the most. Fannie and Freddie received government bail-out funds, as did private "too big to fail" financial institutions, and interest rates have since remained low, at high cost to savers. (Most of the bail-out funds were subsequently paid back, however; indeed the government has taken far more in profits earned by Fannie and Freddy than the latter received during the financial crisis.) Arguably the combination of boom and bust benefitted insiders, whose wealth soared during the boom and who then escaped most of the cost of the resulting bust.

The ability of governments to trade distributional rent for political support is a problem facing many societies, and not just because of efficiency issues. A high level of rent seeking in this form signals secrecy

in government, corruption, and unequal treatment of insiders and outsiders in the form of barriers that constrain social mobility and equality before the law and perpetuate greater economic opportunity for some than for others. The way a support-maximizing government obtains its support reflects the very nature of the society it governs.

NOTES

*I am indebted to Sarah Aboul-Magd for drawing the diagrams.

1. See also Cassidy [2009] and Krugman [2009].
2. For an extended discussion and partly different point of view, see Krugman [2009, chs. 7-10]. As well, see Mian, Sufi, and Verner [2017].

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